North Carolina State Crime Laboratory

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MEMORANDUM

FROM: John A. Byrd, Director, North Carolina State Crime Laboratory

TO: The North Carolina Forensic Science Advisory Board

SUBJECT: Request for FSAB Advice Regarding Reinterpretation of Prior Forensic DNA Casework

As the Director of the North Carolina State Crime Laboratory, I seek the advice of this Board concerning a recent stakeholder request—that SCL takes steps to enable reinterpretation of DNA profiles from certain forensic DNA casework completed prior to January 2013.

As a few of you already know, in the year 2010 the Scientific Working Group on DNA Analysis Methods (SWGDAM) published updated interpretation guidelines for autosomal DNA typing by forensic DNA laboratories, the first update since the year 2000. And earlier this year, SWGDAM again published new guidelines which superseded the 2010 guidelines.

SWGDAM interpretation guidelines are expressly non-mandatory and non-retroactive but are published instead with the forward-looking purpose of informing the development of future DNA laboratory protocols consistent with best scientific practices in a rapidly advancing discipline of forensic science practice. As the 2017 guidelines state: *"With the underlying assumption that work performed prior to the issuance of these revisions was appropriate and supported by validation, revision of the applicable guidelines is not intended to invalidate or call into question the previous work."*

But there have indeed been calls from a few criminal justice stakeholders (particularly among the defense bar) for DNA laboratories to apply certain SWGDAM guidelines retroactively to casework completed before the recommendations were incorporated into testing protocols. In particular, attention has been directed toward what is termed the "stochastic threshold" first addressed in the 2010 guidelines, *"defined as the value above which it is reasonable to assume that allelic dropout has not occurred within a single-source sample."*

Beginning in January 2013, State Crime Laboratory DNA interpretation for forensic casework has been aided in part by a validated stochastic threshold, serving "to alert the DNA analyst that all of the DNA typing information may not have been detected for a given sample." The new validations for 2013 were completed using Identifiler Plus kits. Use of Identifiler kits was discontinued once testing with Identifiler Plus kits came online.

SCL forensic DNA casework completed prior to January 2013 with the use of Identifiler kits has not been called into question by any auditing body. This included audit reviews under both FBI QAS standards and ASCLD-LAB accreditation standards. Additionally, an early FSAB subcommittee was formed in September 2012 for the review of then-existing Forensic Biology protocols and for consultation with the Forensic Biology Section.

According to information currently known to SCL's senior DNA experts and the laboratory legal counsel, DNA laboratories in only one State (Texas) have, to date, "recalculated" prior DNA statistical results by applying newly validated stochastic thresholds to previously completed forensic DNA casework as requested on a case-by-case basis. However, two other points of information are relevant. First, it is unknown whether these actions have withstood QAS audit scrutiny. Second, it is believed that one or more affected laboratories in Texas have been able to apply validated stochastic thresholds retroactively because the testing kits did not change when the stochastic threshold was first validated and implemented in case work.

No stochastic threshold was ever validated for Identifiler kits for use in forensic DNA casework at the North Carolina State Crime Laboratory because these kits were discontinued in January 2013. There are considerable challenges and concerns which would be involved in any attempt to do so at the present time. And beyond this, still other (perhaps greater) concerns would be involved in any effort to reinterpret DNA profile information using kits for which no SCL analyst has been proficiency tested in several years. The attached information paper contains additional details for the Board's consideration.

I am respectfully making the following request: that this Board provide any advice it deems prudent and helpful for the State Crime Laboratory's consideration of this matter. At this time, I am not requesting FSAB review of any specific case file or class of cases, though I am open to this possible step in the future and will carefully consider any Board feedback whether FSAB review of any forensic DNA case files would be appropriate in resolving questions raised by this request for advice.

Attachment: Technical and Administrative Considerations

JAB/WPH

Technical and Administrative Considerations
Re: Request for FSAB Advice Regarding Reinterpretation of Prior Forensic DNA Casework

Overall considerations include the following:

a. Validation of a stochastic threshold: is there sufficient pre-existing data upon which to base the validation of a stochastic threshold for discontinued Identifiler kits and, if not, is it feasible to conduct a new validation study?
b. New validation on new instrumentation: for any new validation study using Identifiler kits, given that the study would be accomplished using new instrumentation and the previously-validated analytical threshold would have to be re-validated, a new statistical calculation could not even be accomplished without the re-submission of DNA material; in which case, would it not be more advisable to analyze the re-submitted material using current kits instead of conducting an entirely separate validation just for this purpose?
c. Competency testing and proficiency testing: how to best implement the June 6, 2016 "SWGDAM Clarification on the Reinterpretation of Data Typed with Legacy Amplification Test Kits," and what guides technical leader discretion as to the soundness of these options?
d. Impacts on current forensic DNA operations (overall): multiple validations for future casework are underway or planned for Raleigh Laboratory; validations planned for Western Regional Laboratory in 2017; anticipated increase in casework/CODIS reviews related to untested sexual assault kits; 8 DNA analysts remain in training, with 6 not set for release to casework until December 2017 or later.
e. Impacts on current forensic DNA case workloads: how to prioritize requests for reinterpretation of prior forensic DNA casework and to manage such resubmissions without impacting efforts toward reduction of current inventory/lead time?
f. Fiscal impact: how to support the additional costs of validations and competency/proficiency testing?
g. Weighing potential for case impact: whether "reinterpreted" statistical calculations is reasonably likely to impact any criminal case proceeding—that is, would new calculations have "a direct and material bearing" upon questions of guilt or innocence within the post-conviction context, or would shifts in statistical weight likely be far more subtle, especially where the positive association was strong in the first place?